SEDAR standardized report cards used for review of indices of abundance for Atlantic and Gulf of Mexico king mackerel

SEDAR 38 Indices Working Group

SEDAR38-DW-05

15 January 2014

This information is distributed solely for the purpose of pre-dissemination peer review. It does not represent and should not be construed to represent any agency determination or policy.

Please cite this document as:

SEDAR 38 Indices Working Group. 2014. SEDAR standardized report cards used for review of indices of abundance for Atlantic and Gulf of Mexico king mackerel. SEDAR38-DW-05. SEDAR, North Charleston, SC. 45 pp.

SEDAR STANDARDIZED REPORT CARDS USED FOR REVIEW OF INDICES OF ABUNDANCE FOR ATLANTIC AND GULF OF MEXICO KING MACKEREL

SEDAR 38 Indices Workgroup

Workgroup Chair: Matthew Lauretta[1]

SUMMARY

Indices of king mackerel abundance in the U.S. Gulf of Mexico and the U.S. South Atlantic were reviewed during the SEDAR 38 Data Workshop held December 9 to December 13, 2013. Standardized report cards for SEDAR indices of abundance were completed for each reviewed index, and the report cards are compiled in this document.

[1] U.S. Dept. of Commerce, NOAA Fisheries, Southeast Fisheries Science Center, Miami Laboratory, 75 Virginia Beach Drive, Miami, Florida 33149 USA. Email: Matthew.Lauretta@noaa.gov

DESCRIPTION OF THE DATA SOURCE:

NMFS COMMERCIAL LOGBOOK INDEX

Working Group Comments:

	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).				X
B. Describe any changes to reporting requirements, variables reported, etc.				X
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				X
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.		X		

Methods in S38-DW-10

METHODS

1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				X
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).				X
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?				X

Methods in S38-DW-10

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
2. Management Regulations (for FD Indices)					
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).				X	Methods in S38-DW-10
B. Describe the effects (if any) of management regulations on CPUE				X	
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.				X	
3. Describe Analysis Dataset (after exclusions and other treatments)					
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				X	Figure and table provided in S38-DW-10
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				X	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				X	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				X	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				X	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				X	
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				X	
4. Model Standardization					
A. Describe model structure (e.g. delta-lognormal)				X	Tables and figures provided in S38-DW-10
B. Describe construction of GLM components (e.g. forward selection from null etc.)				X	
C. Describe inclusion criteria for factors and interactions terms.				X	
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				X	
E. Provide a table summarizing the construction of the GLM components.				X	
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				X	
G. Report convergence statistics.				X	

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				X
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				X
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				X
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				X
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				X
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				X
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				X
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				X
F. Include plots of the residuals by factor				X
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	X			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	X			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	X			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	X			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	X			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	X			

Working Group Comments:

The feasibility of this diagnostic is still under review.

MODEL DIAGNOSTICS (CONT.)

	Not Applicable	Absent	Incomplete	Complete

Working Group Comments:

D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				X
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				X

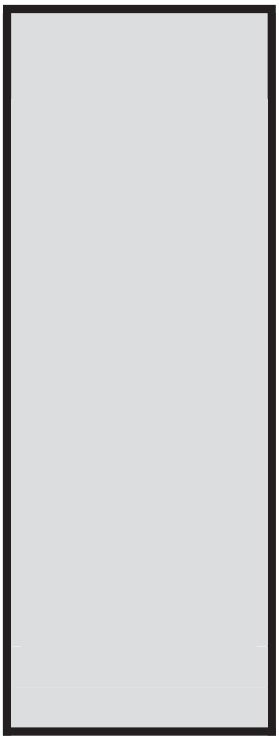
MODEL RESULTS

A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				X
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				X

IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED:

(***Note: this is always recommended but required when model diagnostics are poor.***)

1. Plot of resulting indices and estimates of variance				X
2. Table of model statistics (e.g. AIC criteria)	X			



	Date Received	*Workshop Recommendation*	*Revision Deadline ****	*Author and Rapporteur Signatures*
First Submission	12/9/2013	use in ATL and GOM assessment model, 1998 forward only as data prior are not considered reliable, by commercial group recommendation	January 14	
Revision	1/3/2014	Use in ATL and GOM as revised		

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before*
this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.

Justification of Working Group Recommendatio

Data are considered reliable from 1998 forward, with large spatial and temporal coverage. Potential revision to continuity index based on new definitions of stock boundaries, TBD.

Trolling only index should be compared with the multiple gear index generated, as trolling was identified as the primary commercial fishing method over the entire time series.

DESCRIPTION OF THE DATA SOURCE:

NC TRIP TICKET INDEX

	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).				X
B. Describe any changes to reporting requirements, variables reported, etc.				X
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				X
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.		X		

Working Group Comments:

Continuity methods recommended for use in base model.

METHODS

1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				X
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).				X
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?				X

Continuity methods recommended for use in base model.

2. Management Regulations (for FD Indices)

	Not Applicable	Absent	Incomplete	Complete
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).				X
B. Describe the effects (if any) of management regulations on CPUE				X
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.				X

3. Describe Analysis Dataset (after exclusions and other treatments)

A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				X
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				X
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				X
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				X
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				X
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				X
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				X

4. Model Standardization

A. Describe model structure (e.g. delta-lognormal)				X
B. Describe construction of GLM components (e.g. forward selection from null etc.)				X
C. Describe inclusion criteria for factors and interactions terms.				X
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				X
E. Provide a table summarizing the construction of the GLM components.				X
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				X
G. Report convergence statistics.				X

Working Group Comments:

Continuity methods recommended for use in base model.

Figure and table provided in S38-DW-

Tables and figures provided in S38-DW-

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				X
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				X
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				X
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				X
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				X
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				X
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				X
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				X
F. Include plots of the residuals by factor				X
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	X			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	X			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	X			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	X			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	X			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	X			

Working Group Comments:

The feasibility of this diagnostic is still under review.

MODEL DIAGNOSTICS (CONT.)

	Not Applicable	Absent	Incomplete	Complete

Working Group Comments:

D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				X
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				X

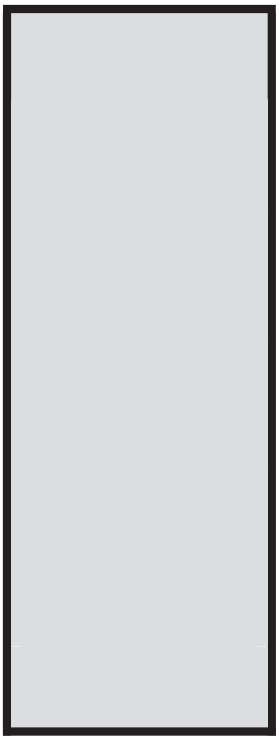
MODEL RESULTS

A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				X
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				X

IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED:

(***Note: this is always recommended but required when model diagnostics are poor.***)

1. Plot of resulting indices and estimates of variance				X
2. Table of model statistics (e.g. AIC criteria)	X			



	Date Received	*Workshop Recommendation*	*Revision Deadline ****	*Author and Rapporteur Signatures*
First Submission	12/9/2013	use in ATL and GOM assessment model, prior to 1998, and replace by commercial logbook 1998 to 2012 for base assessment	January 14	
Revision	1/3/2014	Use in ATL and GOM as revised		

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before*
this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.

Justification of Working Group Recommendatio

~~Data are considered reliable from 1998 forward, with large spatial and temporal coverage. Potential revision to continuity index based on new definitions of stock boundaries, TBD.~~

Data from NC Trip Tickets are contained within the commercial logbook database, and this index should be replaced, as the logbook contains larger spatial coverage and has effort recorded.

DESCRIPTION OF THE DATA SOURCE:

HEADBOAT RECREATIONAL FISHERY SURVEY

Working Group Comments:

	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).				X
B. Describe any changes to reporting requirements, variables reported, etc.				X
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				X
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	X			

Recommended analysis of proportion bag-limited trips. If results similar to SEDAR 16, i.e. few trips observed the bag limit, then use continuity methods in base assessment. Include length frequency distribution when data are available

METHODS

1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				X
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).				X
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?				X

Continuity methods appropriate.

2. Management Regulations (for FD Indices)

	Not Applicable	Absent	Incomplete	Complete
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).		X		
B. Describe the effects (if any) of management regulations on CPUE				X
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.				X

3. Describe Analysis Dataset (after exclusions and other treatments)

A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.		X		
B. Include tables and/or figures of number of positive observations by factors and interaction terms.		X		
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.		X		
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.		X		
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).		X		
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				X
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				X

4. Model Standardization

A. Describe model structure (e.g. delta-lognormal)				X
B. Describe construction of GLM components (e.g. forward selection from null etc.)				X
C. Describe inclusion criteria for factors and interactions terms.				X
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				X
E. Provide a table summarizing the construction of the GLM components.		X		
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)		X		
G. Report convergence statistics.		X		

Working Group Comments:

Management history provided in separate working document. Reassess proportion of trips observing bag limit to verify continuity methods.

Need summaries of observed proportion positive and positive catch rate by factor examined.

Continuity methods appropriate.

Include model standardization summary tables.

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.		X		
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)		X		
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).		X		
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				X
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				X
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				X
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				X
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				X
F. Include plots of the residuals by factor				X
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	X			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	X			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	X			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	X			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	X			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	X			

Working Group Comments:

The feasibility of this diagnostic is still under review.

MODEL DIAGNOSTICS (CONT.)

	Not Applicable	Absent	Incomplete	Complete

Working Group Comments:

D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				X
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				X

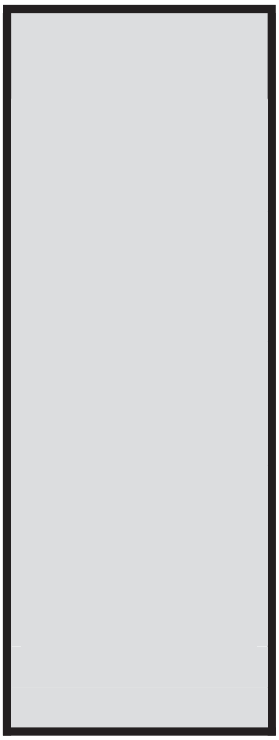
MODEL RESULTS

A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				X
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				X

IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED:

(***Note: this is always recommended but required when model diagnostics are poor.***)

1. Plot of resulting indices and estimates of variance				X
2. Table of model statistics (e.g. AIC criteria)	X			



	Date Received	*Workshop Recommendation*	*Revision Deadline ****	*Author and Rapporteur Signatures*
First Submission	12/9/2013	Analysis of proportion of trip that observed the bag limit should be conducted to validate continuity methods, use in ATL and GOM assessment model	January 14	
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

Potential revision to continuity index based on bag limit analysis. If few trips observed bag limit in recent period, use index for both ATL and GOM age 1 to 11+

DESCRIPTION OF THE DATA SOURCE:

MRFSS RECREATIONAL FISHERY SURVEY

1. Fishery Independent Indices

	Not Applicable	Absent	Incomplete	Complete
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				

2. Fishery Dependent Indices

A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).				X
B. Describe any changes to reporting requirements, variables reported, etc.				X
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				X
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	X			

Working Group Comments:

Recommended revision to continuity indices to modify definition of invidual trips based on leader id and other trip characteristics, opposed to id_code due to potential duplicatation of samples. Include length frequency distribution when data are available

METHODS

1. Data Reduction and Exclusions

A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				X
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).				X
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?				X

Recommended revision to continuity methods to exclude inshore samples where catches of king mackerel are rare, similar to methods applied in SEDAR 33 for amberjack.

2. Management Regulations (for FD Indices)

	Not Applicable	Absent	Incomplete	Complete
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).		X		
B. Describe the effects (if any) of management regulations on CPUE				X
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.				X

3. Describe Analysis Dataset (after exclusions and other treatments)

A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				X
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				X
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				X
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				X
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).		X		
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				X
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				X

4. Model Standardization

A. Describe model structure (e.g. delta-lognormal)				X
B. Describe construction of GLM components (e.g. forward selection from null etc.)				X
C. Describe inclusion criteria for factors and interactions terms.				X
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				X
E. Provide a table summarizing the construction of the GLM components.				X
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)		X		
G. Report convergence statistics.		X		

Working Group Comments:

Management history provided in separate working document. Recommended revision to continuity indices analysis of bag limit effects using censored regression approach applied in SEDAR 31 for red snapper.

Management history provided in separate working document. Recommended revision to continuity indices analysis of bag limit effects using censored regression approach applied in SEDAR 31 for red snapper.

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.		X		
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				X
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).		X		
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				X
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				X
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				X
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				X
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				X
F. Include plots of the residuals by factor				X
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	X			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	X			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	X			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	X			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	X			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	X			

Working Group Comments:

Model diagnostics provided for both GLM components.

The feasibility of this diagnostic is still under review.

MODEL DIAGNOSTICS (CONT.)

Not Applicable	Absent	Incomplete	Complete

Working Group Comments:

D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				X
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				X

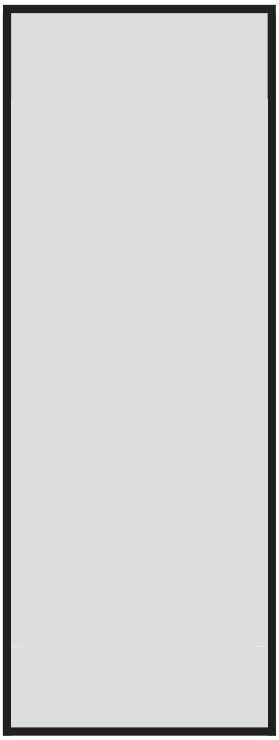
MODEL RESULTS

A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				X
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				X

IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED:

(***Note: this is always recommended but required when model diagnostics are poor.***)

1. Plot of resulting indices and estimates of variance				X
2. Table of model statistics (e.g. AIC criteria)	X			



	Date Received	*Workshop Recommendation*	*Revision Deadline ****	*Author and Rapporteur Signatures*
First Submission	12/9/2013	Revision to continuity indices based on above recommendations, use in ATL and GOM assessment model	January 14	
Revision	1/3/2014	TBD		

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

Revision to MRFSS continuity index based on best practices of recent SEDAR assessments, including analysis of bag limit effects on catch rates using a censored regression model , and modification to the sample identification in data query to use trip leader and trip characteristics opposed to id_code.

5. Minimum Requirements for Submission of Indices of Abundance to SEDAR Workshop Meetings – SEDAR Procedures Workshop 1 Panel – Shannon Cass-Calay

This worksheet is intended to inform authors of SEDAR indices of abundance of the minimum requirements for submission recommended by the SEDAR CPUE workshop panel (Miami, FL October, 2008). The SEDAR CPUE Workshop Panel encourages the development of improved techniques for the construction of CPUE series and attempts to construct indices for data-poor species. We acknowledge that this worksheet may not be appropriate for such indices, and request that CPUE working group panels use this worksheet ***and*** expert judgment to determine the acceptability of each CPUE series.

The spreadsheet is intended to be used as follows:

1) No less than 2 months prior to a SEDAR data workshop, the SEDAR coordinator and the CPUE working group rapporteur will insure that all participants who plan to submit an index of abundance receive this worksheet. The CPUE working group rapporteur will communicate with all CPUE authors to ensure that they are aware of the new recommendations.

2) CPUE authors will attempt to meet the minimum requirements outlined in the worksheet. When these cannot be met, the author will submit a written justification to the CPUE working group. CPUE indices will not be rejected solely due to a failure to meet all minimum requirements.

3) The CPUE Series Worksheet is intended to be filled out by the CPUE working group at the SEDAR Data Workshop. Any missing data requirements will be noted and explained in the column "Working Group Comments". If the working group determines that an index cannot be recommended for use because the minimum requirements have not been met, the working group rapporteur will communicate with the author and determine a schedule for the submission of a revised document. Failure to submit a revised document before the negotiated deadline may result in rejection of the CPUE series.

CPUE Series Worksheets will be included in the SEDAR Data Workshop report and will therefore become a permanent, reviewable record.

DESCRIPTION OF THE DATA SOURCE

	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			

METHODS

1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				✓
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR38-DW??

SEAMAP Fall Plankton Survey 1986 to 2012

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				✓
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				✓
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				✓
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				✓
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3B. Values are able to be calculated from tables in document.

4A. Delta-lognormal

4G. Final binomial and lognormal models converged.

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)			✓	
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				✓
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				✓
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

1B Plots are included only for year.

The feasibility of this diagnostic is still under review.

MODEL DIAGNOSTICS (CONT.)

	Not Applicable	Absent	Incomplete	Complete

Working Group Comments:

D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			

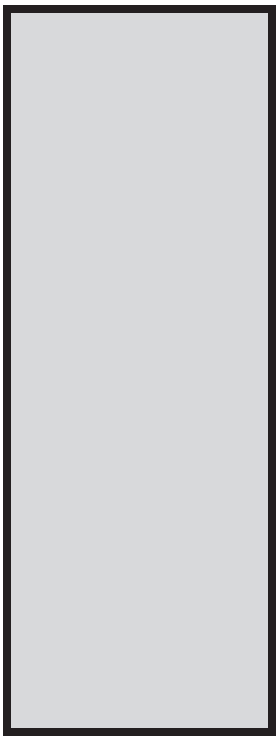
MODEL RESULTS

A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓

IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED:

(***Note: this is always recommended but required when model diagnostics are poor***.)

1. Plot of resulting indices and estimates of variance	✓			
2. Table of model statistics (e.g. AIC criteria)	✓			



	Date Received	*Workshop Recommendation*	*Revision Deadline ****	*Author and Rapporteur Signatures*
First Submission	09/20/2012	accept as prepared		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The SEAMAP Fall Plankton Survey was recommended for use in the assessment model. This survey represented a long, fishery independent time series, with no change in methodology. Additionally, it was the only survey that characterizes larval red snapper. The final versions of the abundance indices recommended for use were the age adjusted index for the western GOM that included all larvae between 3.75 and 9.25 mm, and the frequency of occurrence model for the eastern GOM. The frequency of occurrence model was chosen over the delta-lognormal index due to extremely low catches and occurrence of red snapper in the eastern GOM. The group agreed that back-calculating of ages was appropriate, especially since high mortality rates existed in the larval data and by back-calculating it brought the index closer to the number of larvae hatched.

Reset Fields

This page intentionally left blank.

5. Minimum Requirements for Submission of Indices of Abundance to SEDAR Workshop Meetings – SEDAR Procedures Workshop 1 Panel – Shannon Cass-Calay

This worksheet is intended to inform authors of SEDAR indices of abundance of the minimum requirements for submission recommended by the SEDAR CPUE workshop panel (Miami, FL October, 2008). The SEDAR CPUE Workshop Panel encourages the development of improved techniques for the construction of CPUE series and attempts to construct indices for data-poor species. We acknowledge that this worksheet may not be appropriate for such indices, and request that CPUE working group panels use this worksheet ***and*** expert judgment to determine the acceptability of each CPUE series.

The spreadsheet is intended to be used as follows:

1) No less than 2 months prior to a SEDAR data workshop, the SEDAR coordinator and the CPUE working group rapporteur will insure that all participants who plan to submit an index of abundance receive this worksheet. The CPUE working group rapporteur will communicate with all CPUE authors to ensure that they are aware of the new recommendations.

2) CPUE authors will attempt to meet the minimum requirements outlined in the worksheet. When these cannot be met, the author will submit a written justification to the CPUE working group. CPUE indices will not be rejected solely due to a failure to meet all minimum requirements.

3) The CPUE Series Worksheet is intended to be filled out by the CPUE working group at the SEDAR Data Workshop. Any missing data requirements will be noted and explained in the column "Working Group Comments". If the working group determines that an index cannot be recommended for use because the minimum requirements have not been met, the working group rapporteur will communicate with the author and determine a schedule for the submission of a revised document. Failure to submit a revised document before the negotiated deadline may result in rejection of the CPUE series.

CPUE Series Worksheets will be included in the SEDAR Data Workshop report and will therefore become a permanent, reviewable record.

DESCRIPTION OF THE DATA SOURCE

	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			

METHODS

1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				✓
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR38-DW??

SEAMAP Fall Plankton Survey 1986 to 2012

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				✓
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				✓
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				✓
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				✓
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3B. Values are able to be calculated from tables in document.

4A. Delta-lognormal

4G. Final binomial and lognormal models converged.

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)			✓	
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				✓
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				✓
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

1B Plots are included only for year.

The feasibility of this diagnostic is still under review.

MODEL DIAGNOSTICS (CONT.)

Not Applicable	Absent	Incomplete	Complete

Working Group Comments:

D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			

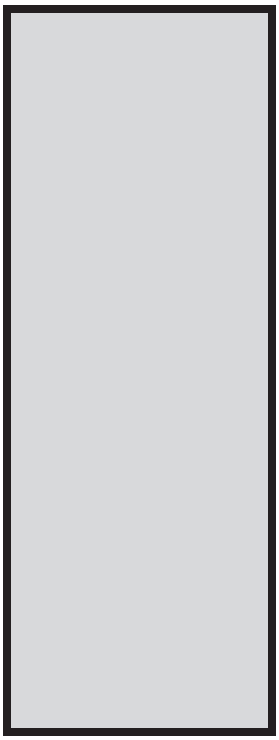
MODEL RESULTS

A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓

IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED:

(***Note: this is always recommended but required when model diagnostics are poor***.)

1. Plot of resulting indices and estimates of variance	✓			
2. Table of model statistics (e.g. AIC criteria)	✓			



	Date Received	*Workshop Recommendation*	*Revision Deadline ****	*Author and Rapporteur Signatures*
First Submission	09/20/2012	accept as prepared		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The SEAMAP Fall Plankton Survey was recommended for use in the assessment model. This survey represented a long, fishery independent time series, with no change in methodology. Additionally, it was the only survey that characterizes larval red snapper. The final versions of the abundance indices recommended for use were the age adjusted index for the western GOM that included all larvae between 3.75 and 9.25 mm, and the frequency of occurrence model for the eastern GOM. The frequency of occurrence model was chosen over the delta-lognormal index due to extremely low catches and occurrence of red snapper in the eastern GOM. The group agreed that back-calculating of ages was appropriate, especially since high mortality rates existed in the larval data and by back-calculating it brought the index closer to the number of larvae hatched.

Reset Fields

This page intentionally left blank.

DESCRIPTION OF THE DATA SOURCE:
SEAMAP ATLANTIC TRAWL FISHERY INDEPENDENT SURVEY

	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				X
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				X
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				X
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				X
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				X
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				X
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	X			
B. Describe any changes to reporting requirements, variables reported, etc.	X			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	X			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	X			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				X
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	X			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	X			

Working Group Comments:

Standardized Fishery Independent bottom trawl survey. S38-DW-11

2. Management Regulations (for FD Indices)

	Not Applicable	Absent	Incomplete	Complete
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	X			
B. Describe the effects (if any) of management regulations on CPUE	X			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	X			

Working Group Comments:

Sampling independent of management regulations.

3. Describe Analysis Dataset (after exclusions and other treatments)

A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				X
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				X
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				X
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				X
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				X
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				X
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				X

4. Model Standardization

A. Describe model structure (e.g. delta-lognormal)				X
B. Describe construction of GLM components (e.g. forward selection from null etc.)				X
C. Describe inclusion criteria for factors and interactions terms.				X
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				X
E. Provide a table summarizing the construction of the GLM components.				X
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				X
G. Report convergence statistics.				X

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				X
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				X
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				X
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				X
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				X
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				X
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				X
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				X
F. Include plots of the residuals by factor				X
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	X			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	X			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	X			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	X			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	X			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	X			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	X			

Working Group Comments:

Log10-transformation of positive catch rates. Distribution plots, qq plots, distribution fit, residuals included in S38-DW-11

MODEL DIAGNOSTICS (CONT.)

Not Applicable	Absent	Incomplete	Complete

Working Group Comments:

D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	X				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	X				

MODEL RESULTS

A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				X	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				X	

IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED:

(***Note: this is always recommended but required when model diagnostics are poor.***)

1. Plot of resulting indices and estimates of variance				X	
2. Table of model statistics (e.g. AIC criteria)				X	

	Date Received	*Workshop Recommendation*	*Revision Deadline ****	*Author and Rapporteur Signatures*
First Submission	12/9/2013	Use in ATL assessment age-0 index of abundance	TBD	
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

Fishery independent Atlantic trawl survey with large spatial coverage, consistent sampling methods, and sampling independent of management regulations. Model predictions not likely to change with change in stock boundary definitions due to low sample sizes in Florida east coast.

Table 1. Tabulated Notes on Atlantic King Mackerel Indices of Abundance from the SEDAR 38 Data Workshop.

DESCRIPTION OF DATA				METHODS				MODEL DIAGNOSTICS				
Index Name	Type	Stock	Description of Data Source	Data Reductions and Exclusions	Management Regulations	Describe Dataset	Model Standardization	Binomial Component	Lognormal/Gamma	Multiple Model structures tested	Recommendation	Comments
SEAMAP Trawl Survey	Independent	Atlantic	Modified falcon bottom trawl net survey (22.9 m, 1.875 cm mesh, 20 min tow)	Exclusions: prior to 1990, winter mixing zone, >30 ft depth	None	Covariates: year, area, season, depth, temp, sal	delta-lognormal (base 10 transformation on positives) and delta-gamma tested, backward selection, AIC selection criteria, year*factors tested, year*area included as fixed factor	chi-sq residuals plotted against index	histogram of postive transformed and model fit, qq plots, and obs-pred residual plot provided	AIC model selection criteria provided	Use as Atlantic stock recruitment index. Revise index to include temperature as a factor and eliminate data from the winter mixing zone (12 total samples)	Inclusions of additional covariates (e.g. temp, sal, water quality) that demonstrate long-term trends should be carefully considered whether they affect the population or the catchability of the gear (if population effect, should not be included in index standardization). In this case, temperature is believed to affect gear catchability and should be included as a covariate in SEAMAP trawl index
MRFSS	Recreational	Atlantic	Recreational dock intercepts, Hook and line (charter and private)	Data exclusions: prior to 1981, Texas samples, Headboat surveys, non-hook and line gear,inshore area, shore mode all excluded.	Bag limits, Size limits not accounted for	Covariates: Year, state (Florida split between Gulf, winter mixing and Atlantic), season, mode, offshore area	Delta-lognormal, forward selection, deviance reduciton of 5% or greater inclusion criteria, year*area interactions tested as fixed and modeled as a random effect	Observed vs. Predicted	histogram of postive transformed and model fit, qq plots, and obs-pred residual plot provided	No	See index sheet for modifications	See index sheet for modifications
NC Trip Ticket	Commercial	Atlantic	Trolling, and handline dealer landings reporting	Data exlcusions: vessel with less than 8 years in fishery, Stephens and McCall trip selection criteria used to identify targeted trips	3500 lb catch limit, not limiting	Covariates: Year, season	Delta-lognormal, forward selection, deviance reduciton of 5% or greater inclusion criteria, year*area interactions tested as fixed and modeled as a random effect	residuals plotted against index	histogram of postive transformed and model fit, qq plots, and obs-pred residual plot provided	NA	Use as index of Atlantic stock abundance for ages 1-11+ for continuity model; Should be superceded by commercial logbook data which includes NC trip ticket data as well as expanded regional coverage, effort measurements, and same temoral coverage	Replace with commercial logbook data in base model
Commercial logbook	Commercial	Atlantic	Trolling, and handline fisher reported landings, effort and covariates	Data inclusions: vessels sorted by years in fishery, and selected by cumulative vessel landings up to 80% of total; Data exclusions: values outside 99.5 quantile of observed data removed as outliers and clear factor outliers (e.g., > 10 days at sea), trips during closed seasons excluded, and trips operating under a 25 fish limit excluded. Group comment: per SEDAR 16 decision, because hours fished was recorded additional trip limits beside the 25 fish period were not excluded, and it was assumed that fishers generally stopped fishing after the trip limit	3500 lb limit/trip outside mixing zone (not observed to be limiting), within mixing zone vast array of regulations (see management table which includes closed seasons, variable trip limits, and spatial closure, and size limits)	Covariates tested (all tested as categorical): Year, area, days at sea, target (defined as fraction of KM in catch), vessel length, number of lines fishes, number of hooks per line, gear type, hours fished	Delta-lognormal, forward selection, deviance reduciton of 5% or greater inclusion criteria, year*area interactions tested as fixed and modeled as a random effect	Final model selected: year, crew, gear, number of gear (# of lines),; residuals plotted against index to evaluate model fit	Final model selected: year, season, crew, effort (# of hooks per line), away (days at sea), hrs fished, target, target*year (tested as fixed, modeled as random effects) ; histogram of postive transformed and model fit, qq plots, and obs-pred residual plot provided	NA	Use as index of abundance for Atlantic continuity model for ages 1-11+; may be superceded by new defintion of Atlantic stock zone to include mixing zone during the summer period	Constructed by calendar year, should be fishing year for consistency with VPA
S. Carolina Pier Survey	Recreational	Atlantic	Landings recorded at 2 piers, live-bait fishery, 1973-2012 (some missing years) pier 1, and 1989-2011 for other pier	1989 exluded due to pier destruction from Hugo	Size and bag limits	Nonstandardized	Not conducted at this time, observed means examined	NA	NA	NA	Do not include in assessment due to small spatial coverage and non-recording of effort	Useful for evaluation of localized stock trends and potentially environmental factor analysis, repeated measures at consistent site

Table 2. Tabulated Notes on Gulf of Mexico King Mackerel Indices of Abundance from the SEDAR 38 Data Workshop.

DESCRIPTION OF DATA				METHODS				MODEL DIAGNOSTICS				
Index Name	Type	Stock	Description of Data Source	Data Reductions and Exclusions	Management Regulations	Describe Dataset	Model Standardization	Binomial Component	Lognormal/Gamma	Multiple Model structures tested	Recommendation	Comments
SEAMAP Fall Plankton Survey	Independent	Gulf	60-61cm bongo plankton net survey (oblique tow)	Exclusions: prior to 1987, systematic sample grid, fall only	None	Covariates: year, region (East vs. West), depth, time of day (day vs. night)	delta-lognormal (natural log transformation on positives), forward selection, Chi-sq significance (alpha<0.05), 1% deviance reduciton criteria for factor inclusion, year*factor interactions tested as fixed (none significant)	chi-sq residuals plotted against index	histogram of postive transformed and model fit, qq plots, and obs-pred residual plot provided	NA	Use as Gulf of Mexico spawning stock abundance index	
SEAMAP Deepwater Trawl	Independent	Gulf	90 ft wide opening bottom trawl (need to revise David to double-check)	Data Exclusions: depths >110 m, tow with operations problems (ex. Torn nets, twisted nets), samples in Shrimp Stat Zone 12, 2002 and 2003 data excluded (inconsistent sample deployment)	None	Covariates in data: Year, region, time of day, depth (continuous variable)	delta-lognormal (natural log transformation on positives), backward selection, Chi-sq significance (alpha<0.05), AIC model selection criteria, year*factor interactions not tested	chi-sq residuals plotted against index	histogram of postive transformed and model fit, qq plots, and obs-pred residual plot provided	NA	Do not inlude due to low sample size, positive observations dominated by one sample	
SEAMAP Groundfish Survey	Independent	Gulf	40 ft shrimp bottom trawl survey	Data Exclusions: depths >110 m, tow with operations problems (ex. Torn nets, twisted nets), samples in Shrimp Stat Zone 2-9 and 12, < 5 fathoms and > 65 fathoms excluded, State of Texas survey data excluded	None	Covariates: Year, Shrimp Stat Zone, depth (categorical)	delta-lognormal (natural log transformation on positives), backward selection, Chi-sq significance (alpha<0.05), AIC model selection criteria, year*factor interactions not tested	chi-sq residuals plotted against index	histogram of postive transformed and model fit, qq plots, and obs-pred residual plot provided	NA	Use as index of recruitment for Gulf of Mexico run for continuity VPA. Revise index based on 1987 to 2012 summer and fall groundfish survey combined (spatial distribution expanded after 1986 to include Western Gulf)	
MRFSS	Recreational	Gulf	Recreational dock intercepts, Hook and line (charter and private)	Data exclusions: prior to 1981, Texas samples, Headboat surveys, non-hook and line gear, inshore area, shore mode all excluded.	Bag limits, Size limits not accounted for	Covariates: Year, state (Florida split between Gulf, winter mixing and Atlantic), season, mode, offshore area	Delta-lognormal, forward selection, deviance reduciton of 5% or greater inclusion criteria, year*area interactions tested as fixed and modeled as a random effect	Observed vs. Predicted	histogram of postive transformed and model fit, qq plots, and obs-pred residual plot provided	No	See index sheet for modifications	See index sheet for modifications
Commercial logbook	Commercial	Gulf	c	Data inclusions: vessels sorted by years in fishery, and selected by cumulative vessel landings up to 80% of total; Data exclusions: values outside 99.5 quantile of observed data removed as outliers and clear factor outliers (e.g., > 10 days at sea), trips during closed seasons excluded. Group comment: per SEDAR 16 decision, because hours fished was recorded trip operating under catch limits were not excluded, and it was assumed that fishers generally stopped fishing after the trip limit was caught	vast array of regulations (see management table which includes closed seasons, variable trip limits, and spatial closure, and size limits)	Covariates tested (all tested as categorical): Year, area, days at sea, target (defined as fraction of KM in catch), vessel length, number of lines fishes, number of hooks per line, gear type, hours fished	Delta-lognormal, forward selection, deviance reduciton of 5% or greater inclusion criteria, year*area interactions tested as fixed and modeled as a random effect	Final model selected: year, hrs fished, gear, number of gear, area year*time (random); residuals plotted against index to evaluate model fit	Final model selected: year, crew, hrws fished, gear, target, number gear, effort; histogram of postive transformed and model fit, qq plots, and obs-pred residual plot provided	NA	Use as index of abundance for Gulf of Mexico stock continuity	Constructed by calendar year, should be fishing year for consistency with VPA